

NEWSLETTER February 2015



Chair's Update

ASI Levy

By now many growers will have received invoices for the POMS breeding levy. Can I firstly thank all of those, which is the vast majority, who have been paying the levy in good faith, we at ASI fully understand that things are tough out there and that any new cost to businesses make things even tougher.

In saying this we need to keep in mind why we are doing this – if POMS comes to town and we have done nothing then things will be a whole lot tougher. We only need to ask the Hawkesbury farmers who no longer have a business why we need to be proactive in addressing the threat of POMS and developing greater resilience in our oysters generally.

We have no intention of making things more difficult than they already are so if you are having difficulties with payment please talk to us and we will attempt to find a solution. To those out there that are purposely boycotting the levy I remind you that this is a compulsory levy as per the ACCC adjudication. Even a moderate level of non-compliance in relation to levy payments will impact on the ability of ASI to deliver on the outcomes that the vast majority of growers have identified as being essential.

ASI Board

We are in the process of finalising the appointment of an independent person to oversee the selection panel for the new ASI chair. The independent person will join Steve Bowley and Ian Duthie on the panel which will make a recommendation to the ASI board. The newly appointed ASI Chair will then assume the role of overseeing the process of interviewing applicants for the two independent director's positions on the ASI Board. The independent chair and 2 independent directors will then be joined by the 2 shareholder nominated directors to make up the new board. Although the process of appointing the new Board has taken longer than we would like the current Board is cognisant of the need ensure the selection process is rigorous and results in the appointment of well qualified chair and independent directors to the ASI Board.

Industry Reference Group Meeting

The inaugural hatchery reference group meeting was held last November in Melbourne. The meeting was attended by growers from Tasmania, South Australia and New South Wales as well as hatchery representatives and researchers. The meeting aimed to meet three primary objectives;

- To provide the group with a basic understanding of key selective breeding principles for family selection programs with particular reference to the ASI program for Pacific Oysters.
- 2) To present historical genetic trends for all traits and to forecast what genetic gains may be possible into the future under various scenarios in relation to trait focus.
- 3) To discuss and refine terms of reference and composition of the ongoing ASI industry reference group

Arguably the most important part of the meeting was spent discussing what traits ASI should direct it's focus. The historical genetic trends for the ASI breeding population were presented, with a strong feeling amongst the reference group that SAMS (South Australian Mortality Syndrome) resistance should not be used as a descriptor for survival. It was suggested that overall oyster "resilience" or "fitness" replace SAMS resistance and that ASI should measure this trait in other areas such as Port Stephens and St Helens. Participants agreed that oyster survival is a trait of importance for all states.

The reference group then explored and discussed predicted gains scenarios with focus on various traits. It was agreed that POMS resistance and oyster "fitness/resilience" should be the focus traits and that if possible at least some positive gains for meat condition should be sought. There was some feeling that oyster condition was a trait that could be managed with husbandry techniques and as such should not have a high focus in the breeding program. The example of Sydney Rock Oyster disease resistant lines and their difficulty to condition was raised as a reason to keep at least a moderate focus for meat condition. The aim for the traits of growth rate and shape should be to maintain the status quo.

ASI Genetic Selection Scenarios

Prepared by Peter Kube (CSIRO) and Matt Cunningham (ASI) – November 2014

Predicted gains, expressed as percentage gain per year, for a range of different selection strategies are shown in the table below. Each selection strategy places the emphasis on different selection traits. This ranges from selecting for one trait only, to multiple trait selection. For single trait selection (such as selection for POMS resistance), the changes in other traits occur due to a correlated response – that is, these changes are an unintended consequence from single trait selection. For multi-trait selection there are always compromises to be made because no single family is optimal for all traits and, therefore, gains in each trait are lower. However, it is assumed overall merit is improved by achieving gains in more traits. Note that the percentage gains are expressed in different ways:

- For survival traits (POMS and SAMS) percentage gain is the increase in survival. That is, if the average survival is 40%, then a 10% gain changes that average to 50%
- For all other traits (WI, DI, WT, CON) percentage gain is a percentage improvement. That is, if the average weight is 50g then a 10% gain changes that weight to 55g.

Gains in condition assume measurements based on the use of existing methods. However, research just completed (the CRC condition project 2009/743) has indicated the potential to improve genetic gains with different approaches. These will be adopted and can potentially double the rate of genetic gain for condition (updated condition gains estimates are being developed).

Estimated genetic gains (% gain per year) for different selection scenarios

SELECTION STRATEGY	POMS	SA_SUR	WI	DI	WТ	COND
1) POMS only	14%	2%	0%	1%	1%	-1%
2) SA_SUR only	2%	6%	0%	0%	1%	-1%
3) POMS & SA_SUR only	8%	5%	0%	1%	1%	-1%
4) POMS/ SA_SUR /COND	4%	3%	-1%	0%	-1%	2%
5) POMS/SA_SUR/maintain other traits	5%	5%	0%	0%	2%	0%
6) COND only	-2%	-2%	-1%	-1%	-1%	3%
7) ALL traits	5%	3%	1%	2%	0%	1%

- POMS = resistance to the OsHV-1 virus; SA_SUR = survival on SA grow-out sites; WI = width index; DI = depth index; WT = total weight; COND = condition (meat wet weight to total wet weight).
- Please note that the gains scenarios are for the whole breeding population and that specific choices by commercial hatcheries could see higher gains for commercial crosses.
- This year's breeding plan was closest to strategy 3 and the suggested approach for next year was scenario 4. There will be opportunity for the group to revisit this prior to next season.





YC14 Breeding Season

Activities in our hatchery facility at the Institute of Marine and Antarctic Sciences have now concluded, with a successful breeding season in November/December resulting in 79 families settled. These were bred from YC11, YC12 and YC13 year classes. The male oysters from the YC13 year class were only 12 months of age which is the first time broodstock of this age has been used for family line production. The ability to be able to use 1 year old broodstock will lead to significantly faster gains in POMS resistance as compared with using 2 year old animals.

The spat have now been moved to Shellfish Cultures' Pipeclay Lagoon facility and are in a land based upweller system. They will be transferred into seed trays in late February. From there they will be sent to various testing and broodstock sites in Tasmania, South Australia and New South Wales around June of this year. They will also be tested for POMS resistance in a laboratory challenge at EMAI (NSW).

POMS YC13 Field Challenge

The YC13 families underwent a juvenile field challenge in November and December 2014 in the Georges River, NSW. This disease outbreak was different to previous events, taking 28 days for the mortalities to subside. As with previous trials, high genetic variation in POMS resistance was observed. Average survival was 13% with the best families at 60%. We also saw a moderate correlation between the results of the field and laboratory challenges. This provides further evidence that the lab challenge will be a suitable tool, but it will need ongoing validation against field results. With our continued laboratory and field challenge results, we have a good basis for selecting for POMS resistance which is constantly improving. The results of the latest trial suggest that resistance is accumulating with successive generations of selection and we can remain confident that we will achieve our predicted levels of resistance in the timeframes predicted.





Broodstock Catalogue

Due to feedback from the commercial hatcheries ASI has now revised the way in which we communicate family line performance by producing an annual broodstock catalogue. The catalogue includes information on ASI and our stock selection techniques, photographs, descriptions and statistical information about our strongest performing lines. This replaces the EBV tables which were formerly used and were seen as too difficult to interpret. The current catalogue can be viewed on the ASI website.



Grower Snapshot – Stuart Hansson

Stuart Hansson and his wife Natasha operate a small oyster lease in Pipeclay Lagoon in Sothern Tasmania. "Natasha and I entered the industry 9 years ago and we basically knew nothing about growing oysters. Thankfully James Calvert, who we purchased the lease from gave us a lot of support in the early days" says Stuart. "One of the key messages that James instilled back then was controlling density, and to this day it has remained a key platform for our business". He buys 10mm spat which he stocks at low density and will not handle these for anything up to 8 months. "I find that with the lower densities stock growth is much more even so we don't have smaller oysters being outcompeted by the larger ones. This means that all our oysters are healthy all the time and we don't have to use grading to achieve it, which saves money".

Stuart's preference is to stock ASI seed if possible. "I find that the uniformity of growth and shape with the ASI seed is of huge benefit. Decreasing the spread of sizes in a batch makes managing the farm much easier". He hopes that the POMS levy will see greater production of ASI seed. "We have had issues in getting the ASI stock in the past and now that there is no premium attached we hope there is more of it. The stock performs beautifully and if there is some level of POMS resistance then that is a bonus in my eyes".

So looking back 9 years is Stuart happy with his decision to buy the Pipeclay lease? "Yep absolutely, like all businesses and industries it has its ups and downs, but it has been good to us"

Mongrel Dog Theory

It is no secret that there were some issues with survival of ASI spat in the early days of the program. One common theory amongst growers was the "mongrel dog theory" - basically purebred oysters are somehow genetically compromised in the same way as their canine equivalents. The old mongrel dog, however, is as hard as nails. Most of the problems that beset pure bred dogs are in fact a result of inbreeding due to the small population size of certain breeds. This was not the problem in the early ASI families as we have always and continue to conservatively manage inbreeding levels within our breeding population. The problem was in fact that survival was being poorly measured and was not a high focus trait for breeding. This is no longer the case with survival becoming a trait of extremely high focus over the last 6 or so years and we are seeing the results. ASI lines are no longer the poor cousin when it comes to survival with customer feedback suggesting at least similar if not better survival than normal hatchery seed. We are also forecasting a 3% improvement per generation for the ASI population with specific commercial crosses possibly showing greater gains.



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